THE LISTING OF CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-28 (cancelled).

29. (Previously presented) A method of detecting the presence or absence of a plurality of different target analytes, comprising

(a) providing a first substrate with a surface comprising a plurality of assay wells, wherein said assay wells contain sample solutions each having a plurality of different target analytes;

(b) providing a second substrate comprising a plurality of array locations, each array location comprising a plurality of discrete sites, wherein said sites comprise different bioactive agents;

(c) dipping said array locations into said assay wells under conditions suitable for binding of said different target analytes to said different bioactive agents, thereby processing said sample solutions in parallel; and

(d) detecting the presence or absence of said target analytes.

30. (Previously presented) The method of claim 29, wherein said target analytes comprise nucleic acids or nucleic acid analogs.

31. (Previously presented) The method of claim 30, wherein said nucleic acids comprise single nucleotide polymorphisms.

32. (Previously presented) The method of claim 31, wherein said nucleic acids comprise single nucleotide polymorphisms obtained by multiplex PCR amplification.

33. (Previously presented) The method of claim 30, wherein said nucleic acids are labeled with fluorochromes during PCR amplification.

34. (Previously presented) The method of claim 29, wherein said bioactive agents are selected from the group consisting of peptides, peptide structural analogs, saccharides, fatty acids, steroids, purines, and pyrimidines.

35. (Previously presented) The method of claim 29, wherein said array locations comprise from 10,000,000 to 2,000,000,000 bioactive agents per square centimeter.

36. (Previously presented) The method of claim 29, wherein said array locations comprise from 100,000 to about 10,000,000 bioactive agents per square centimeter.

37. (Previously presented) The method of claim 29, wherein said array locations comprise from 10,000 to about 100,000 bioactive agents per square centimeter.

38. (Previously presented) The method of claim 29, wherein said bioactive agents are directly coupled to said array locations.

39. (Previously presented) The method of claim 29, wherein said bioactive agents are attached to microspheres and wherein said microspheres are associated with said array locations.

40. (Previously presented) The method of claim 29, wherein said target analytes comprise decoder binding ligands.

41. (Previously presented) The method of claim 29, wherein said target analyte is labeled.

42. (Previously presented) The method of claim 41, wherein said label comprises an optical label.

43. (Previously presented) The method of claim 42, wherein said optical label comprises a fluorochrome.

44. (Previously presented) The method of claim 29, wherein said detecting is done through the use of a change in optical signature.

45. (Previously presented) The method of claim 29, further comprising quantitating differences in concentrations of said target analytes

46. (Previously presented) The method of claim 45, further comprising quantitating a specific mRNA.

47. (Previously presented) The method of claim 46, comprising quantitating said specific mRNA in the presence of total cellular mRNA.

48. (Previously presented) The method of claim 29, wherein said assay wells comprise wells of a microtiter plate.

49. (Previously presented) The method of claim 29, wherein said plurality of assay wells comprises 96 wells.

50. (Previously presented) The method of claim 29, wherein said plurality of assay wells comprises 384 wells.

51. (Previously presented) The method of claim 29, wherein said plurality of assay wells comprises 1536 wells.

52. (New) The method of claim 29, wherein optical signals generated at said discrete sites upon binding of said different target analytes to said different bioactive agents are detected.

53. (New) The method of claim 52, wherein said different target analytes comprise labels and wherein said optical signal occurs as a result of said labels recruited to said sites by said target analytes binding said different bioactive agents.

54. (New) The method of claim 52, wherein an enzyme generates species at said discrete sites that are optically detectable.